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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/003,743	11/02/2001	Liaohai Chen	4250.2.11	2278
21552	7590	12/30/2003		
MADSON & METCALF GATEWAY TOWER WEST SUITE 900 15 WEST SOUTH TEMPLE SALT LAKE CITY, UT 84101			EXAMINER SNAY, JEFFREY R	
			ART UNIT 1743	PAPER NUMBER

DATE MAILED: 12/30/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/003,743

Applicant(s)

CHEN ET AL.

Examiner

Jeffrey R. Snay

Art Unit

1743

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 03 October 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-29 is/are pending in the application.
- 4a) Of the above claim(s) 25-29 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-24 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. §§ 119 and 120**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Newly submitted claims 25-29 are directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: The newly recited method fails to require the particular device of claim 1, including the presence of an ionic conjugated polymer and oppositely charged surfactant. Additionally, the device of claim 1, although recited with the *intended* use for detection of neutral gases, would have been capable of use in a materially different method, such as detection of charged gases.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claims 25-29 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

### *Claim Rejections - 35 USC § 102*

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1, 2, 4-7 and 9 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Chen et al (web release date of 09/07/2000).

Chen et al disclose a device for detecting MV2+ (a volatile chemical agent) which comprises all of the presently recited features. Specifically, Chen et al disclose the provision of a sensor film comprising a fluorescent, ionic conjugated polymer (MPS-PPV) and an oppositely charged surfactant (DTA). The film is placed in water (a polar solution) and fluorescence quenching is monitored to detect the presence of MV2+ permeated into the water and to the sensor film. See Figures 2 and 3. It is noted that the disclosure of Chen et al at Figures 2 and 3, depicting a recorded fluorescence quenching spectra, is sufficient evidence that a light source, detector, output device and recording device were all inherently present in the disclosed device. Regarding instant claims 4 and 5, see Chen et al at page 3, line 8, and page 3, line 14, respectively.

### ***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

7. Claims 3, 10, 12-21, 23 and 24 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al, as applied above, and further in view of Klainer et al.

The disclosure of Chen et al fails to teach the provision of a container for holding the sensor and water environment, including a gas permeable membrane. However, Klainer et al disclose an optical sensor in which dissolved gases are directed to a sensor surface which is held in a container and separated from the sample solution by a gas permeable membrane. See Figure 1. It would have been obvious to one of ordinary skill in the art to provide the container and sample introduction membrane of Klainer et al in the method of Chen et al in order to enable the desired introduction of a volatile sample gas into the solution containing the sensing polymer.

Regarding the presently recited vacuum device, it is noted that Klainer et al teach the flowing of sample into a sampling chamber which communicates with the gas

permeable membrane. It would have been obvious to one of ordinary skill in the art to provide any known means for providing such a fluid flow, including either positive or negative pressure sources.

8. Claim 22 is rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al, in view of Klainer et al as applied above, and further in view of Melendez et al.

Melendez et al teach the provision of remote wireless transmission of a signal from an optical sensor. It would have been obvious to one of ordinary skill in the art to provide such a signal transmission capability to the device of Chen et al in order to enable detection from a remote location, as per the teaching of Melendez et al.

9. Claims 8 and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Chen et al in view of Melendez et al.

Melendez et al teach the provision of remote wireless transmission of a signal from an optical sensor. It would have been obvious to one of ordinary skill in the art to provide such a signal transmission capability to the device of Chen et al in order to enable detection from a remote location, as per the teaching of Melendez et al.

Melendez et al further disclose the provision of an encapsulating waveguiding structure over an optical source and detector, so as to form an integrated optical sensor for detecting an analyte contacting a polymer sensor layer. It would have been obvious to one of ordinary skill in the art to fabricate the sensor device of Chen et al as including

the source and detector within a waveguiding support structure in order to integrate the optical sensor components, as per the teaching of Melendez et al.

### ***Response to Arguments***

10. Applicant's arguments filed 10-02-03 have been fully considered but they are not persuasive.

Applicant first argues that the newly recited limitation restricting the detected species to neutral gaseous samples is not presented by Chen et al. The argument is not persuasive because the nature of the detected species is merely an intended use for the claimed device. Since the device of Chen et al includes all of the structure now claimed with respect to the instant invention, the device of Chen would have been fully capable of detecting neutral species in the same manner as the presently claimed device. This dual capability is further evidenced by applicant's own disclosure at page 12 of the specification that the claimed polymeric structure was responsive to both MV2+ (a charged sample species) and TNT (neutral sample species). This portion of applicant's specification is in no way being relied upon as prior art disclosure in this grounds of rejection. Rather, applicant's disclosure merely affords interpretation of the instant claims, which interpretation clarifies that the claimed structure, which is the same as Chen et al, was capable of detecting both charged and neutral sample species.

Applicant further argues that neither Chen et al nor Klainer disclose the provision of a polymeric sensor. The argument is unclear as the disclosure of Chen et al clearly

teaches an MPS-PPV-DTA conjugated polymeric film sensor. See e.g. the last paragraph, first page of Chen et al.

### ***Conclusion***

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

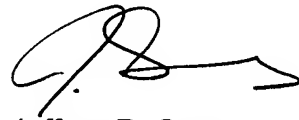
12. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jeffrey R. Snay whose telephone number is (703) 308-4032. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jill A. Warden can be reached on (703) 308-4037. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.



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Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to read 'Jeffrey R. Snay', with a stylized flourish at the end.

Jeffrey R. Snay  
Primary Examiner  
Art Unit 1743

jrs  
December 19, 2003